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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,106	05/05/2005	Kunihiro Ichimura	OPC-CS11	7016

7590 06/11/2008
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EXAMINER

JOHNSON, CONNIE P

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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06/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,106	Applicant(s) ICHIMURA ET AL.	
	Examiner CONNIE P. JOHNSON	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-26, 28, 29 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-26, 28, 29 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/19/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. The remarks and amendment filed 5/19/2008 have been entered and fully considered.
3. Claims 15-26, 28-29 and 32-36 are presented.
4. Claim 31 is cancelled per applicants' request.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 34 is dependent upon claim 31, which is cancelled.

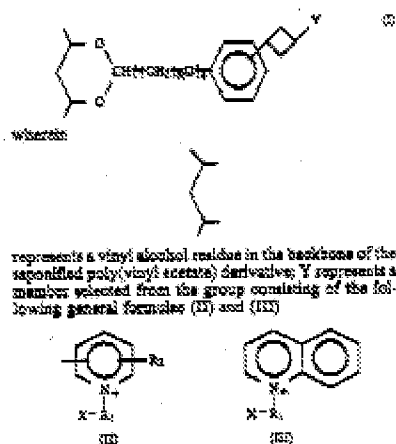
Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 15-19, 21-24, 26, 28-29 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent No. 4,891,300 in view of Fansler et al., U.S. Patent Publication No. 2004/0241480 A1.

Ichimura teaches a photosensitive composition comprising a styrylpyridinium salt compound, a polyvinyl acetate derivative and a light polymerizable ethylenically unsaturated compound (col. 6, lines 63-67 and col. 7, lines 1-39). Example 1 shows that the polyvinyl acetate derivative is dissolved in water (col. 7, lines 54-57). The composition also comprises a photopolymerization initiator (col. 6, line 31) and a sensitizer (col. 4, lines 29-34). The photosensitive unit comprises a polyvinyl alcohol and styrylpyridinium group as in instant claim 22 (see column 2, figure 1).



The polyvinyl acetate in the backbone comprises a vinyloxy group. Examples of the styrylpyridinium compounds include N-methyl-4-(p-formyl-styryl)pyridium methosulfate (col. 7, lines 14-22). Ichimura also teaches a method of forming a pattern. The method comprises preparing a resin emulsion composition and coating the film on a screen

Art Unit: 1774

printing plate. In example 1, the polyvinyl acetate derivative (100g), styrylpyridinium compound (10g), 2,4-diethylthioxane (2g) (sensitizer) and p-dimethylaminobenzoate (4g) (photopolymerization initiator) are mixed and coated on a screen printing plate. The composition is heated to 60⁰C and stirred overnight prior to coating on the screen printing plate. The composition was dried and irradiated with light. After exposure, the composition was developed with water (see example 1, column 8). The water used in development is neutral water and therefore has a pH of 7.0. Ichimura does teach a photosensitive composition. Further, the reaction between the polyvinyl alcohol and the styrylpyridinium salt compound is a photocrosslinking reaction. Ichimura does not teach that the acid former and sensitizer are in the form of particles in the composition.

However, Fansler teaches a photosensitive composition comprising a polyvinylalcohol and a photoacid generator dispersed therein (page 3, [0031 and 0032]). Therefore, the photoacid generator is present in the form of particles. The photoacid generators form a degree of dehydration of the polyvinylalcohol (page 4, [0046]). The composition may also comprise photosensitizers with the photoacid generators in the composition (page 4, [0047]). The photoacid generators form acid in the composition and increase sensitivity to actinic radiation. Ichimura teaches the same (col. 6, lines 31-35). It would have been obvious to one of ordinary skill in the art to use the photoacid generator particles of Fansler in the composition of Ichimura because the photoacid generators of Fansler are known to increase sensitivity and are insoluble in polyvinylalcohol resins and therefore would form particles when dispersed in the composition.

Art Unit: 1774

9. Claims 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent No. 4,891,300 in view of Fansler et al., U.S. Patent Publication No. 2004/0241480 A1 and further in view of Kawamura et al., U.S. Patent No. 6,465,146 B1.

Ichimura teaches a photosensitive composition comprising a styrylpyridinium salt compound, a polyvinyl acetate derivative and a light polymerizable ethylenically unsaturated compound as relied upon above (col. 6, lines 63-67 and col. 7, lines 1-39). The composition also comprises a dispersion of a photoacid generator and sensitizer. Ichimura nor Fansler teach that the sensitizer and photoacid generator particles have a particle size of 1.5 μ m or less.

However, Kawamura teaches a radiation-sensitive composition comprising pigment particles (sensitizer) with a particle diameter of 0.01 to 10 μ m (col. 8, lines 53-55). The particle size of the pigment particles is advantageous to the uniformity of the dispersion in the sensitive layer. Kawamura also teaches a photoacid generator in the composition. It would have been obvious to one of ordinary skill in the art to use a particle size of 0.01 to 10 μ m for the sensitizer and photoacid generator of Ichimura because Kawamura teaches that the particle size is conventional to stabilize and provide uniformity in the sensitive layer.

10. Claims 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent No. 4,891,300 in view of Fansler et al., U.S. Patent Publication No. 2004/0241480 A1 and further in view of Ichimura et al., U.S. Patent No. 4,777,114.

Ichimura teaches a photosensitive composition comprising a styrylpyridinium salt compound, a polyvinyl acetate derivative and a light polymerizable ethylenically unsaturated compound as relied upon above (col. 6, lines 63-67 and col. 7, lines 1-39). Ichimura ('300) does not teach that the composition comprises an aqueous emulsion of a hydrophobic polymer.

However, Ichimura ('114) teaches a photosensitive resin emulsion comprising a film-forming resin and a protective colloid (abstract). The photosensitive resin emulsion comprises a photosensitive unit and a saponified polyvinyl acetate derivative with a hydrophobic unit bonded to the backbone (col. 2, lines 57-67). The photosensitive unit comprises a polyvinyl alcohol and styrylpyridinium group. The aqueous emulsion increases storage stability of the photosensitive composition when only water is used as the solvent. The photosensitive composition of Ichimura ('300) also comprises water as the solvent. Therefore, it would have been obvious to one of ordinary skill in the art to use an aqueous emulsion in the composition of Ichimura ('300) to increase storage stability of the composition.

Response to Arguments

11. Applicant's arguments, filed 5/19/2008, with respect to the rejection(s) of claim(s) 15-24, 26, 28-29 and 31-36 and claims 15 and 25 under 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CONNIE P. JOHNSON whose telephone number is (571)272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson
Examiner
Art Unit 1795

/Cynthia H Kelly/
Supervisory Patent Examiner, Art Unit 1795